

What is claimed is:

1. A gas collector for collecting gasses from within a reaction chamber of a reactor, the reactor including a removable lid for enclosing the reaction chamber, comprising:

a rigid body defining a conduit within said body, at least one inlet, and at least one outlet;

and

5 a seal disposed on said body for cooperating with the lid to prevent escape of the gasses from the reaction chamber.

2. The gas collector according to claim 1, wherein said body includes a first member and a second member.

3. The gas collector according to claim 2, wherein during operation of said gas collector, said first and second members are stationary relative to one another.

4. The gas collector according to claim 2, wherein said first and second members are detachably connected to one another.

5. The gas collector according to claim 1, wherein said conduit has a constant volume.

6. The gas collector according to claim 1, wherein said body includes graphite.

7. The gas collector according to claim 1, wherein said seal is disposed on a top surface of said body and between said body and the lid.

8. The gas collector according to claim 1, wherein said seal is formed from molybdenum.

9. The gas collector according to claim 1, wherein said seal is ring shaped with inner and outer edges.

10. The gas collector according to claim 9, wherein said seal includes slots on said outer edge.

11. The gas collector according to claim 10, wherein said slots are symmetrically position around said outer edge.

12. The gas collector according to claim 9, wherein said seal is generally crescent-shaped in cross-section.

13. The gas collector according to claim 9, wherein top surface includes a pair of concentric slots and said inner and outer edges are respectively positioned within said concentric slots.

14. The gas collector according to claim 9, wherein said seal is detachably connected to said body.

15. A gas collector for collecting gasses from within a reaction chamber of a reactor, the reactor including a removable lid for enclosing the reaction chamber, comprising:

a rigid graphite body defining a constant-volume conduit within said body, at least one inlet, and at least one outlet;

5 said body including first and second members detachably connected to one another, said first and second members stationary relative to one another during operation of said gas collector;

a ring-shaped seal having a generally crescent-shaped cross-section disposed on a top surface of said body for cooperating with the lid to prevent escape of the gasses from the reaction
10 chamber, said seal having inner and outer edges with said outer edge including symmetrically-

positioned slots, said top surface including a pair of concentric slots into which said inner and outer edges are respectively positioned.

16. The gas collector according to claim 15, wherein said seal is formed from molybdenum.

17. The gas collector according to claim 15, wherein said seal is detachably connected to said body.

18. The gas collector according to claim 15, wherein said seal is disposed between said body and the lid.

19. A method for forming deposits on a substrate wafer to form a semiconductor device within a reaction chamber of an epitaxial reactor, comprising the steps of:

introducing reaction gasses into a central portion of the reaction chamber;

drawing the gasses radially outward from the central portion into a constant-volume conduit in a gas collector of the reactor; and

forming the deposits on the substrate wafer as the gas flows from the central portion of the reaction chamber into the gas collector.

20. The method according to claim 19, wherein the deposits include GaAs.